

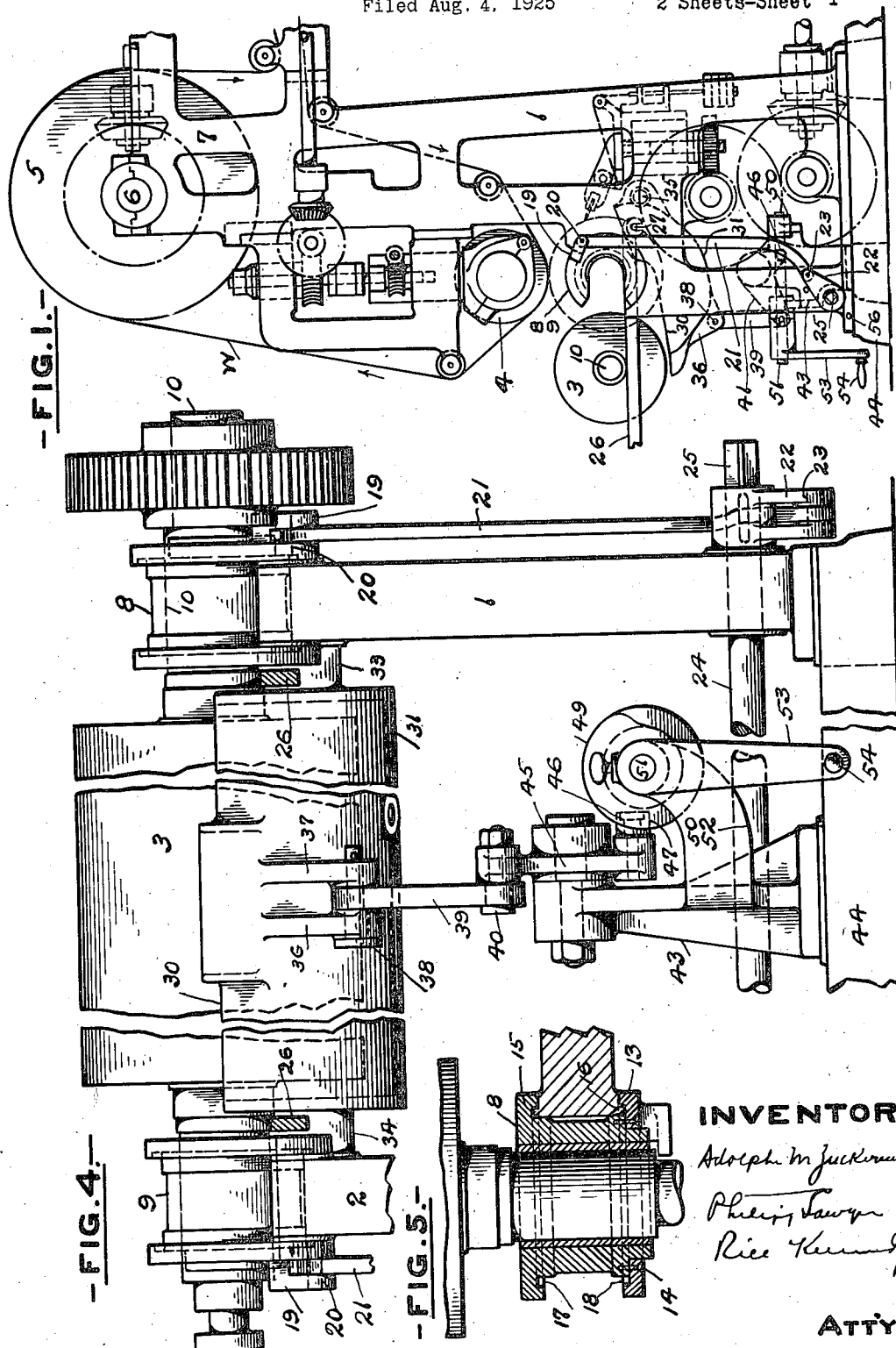
May 17, 1927.

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INTAGLIO PRINTING MACHINE

1,629,137

Filed Aug. 4, 1925

2 Sheets-Sheet 1



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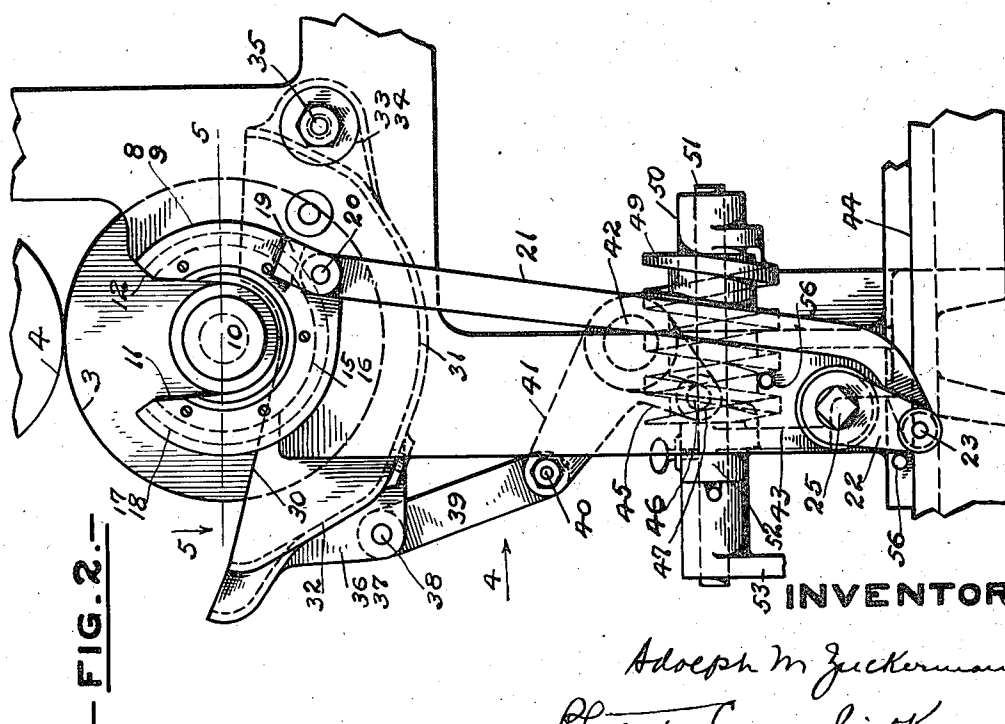
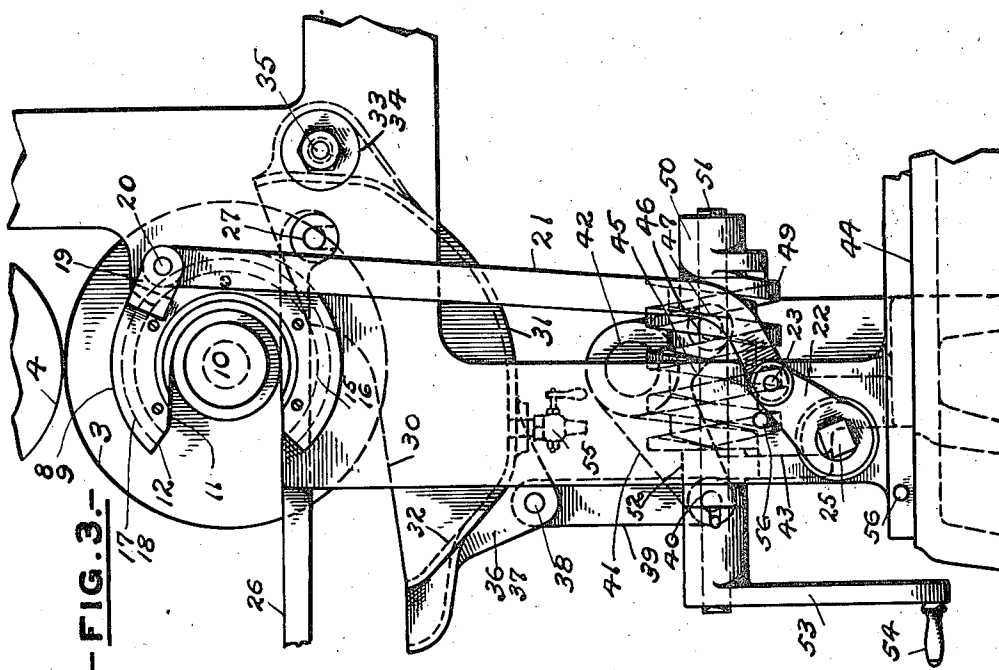
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2 Sheets-Sheet 2



INVENTOR

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ATT'YS.

UNITED STATES PATENT OFFICE.

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INTAGLIO PRINTING MACHINE.

Application filed August 4, 1925. Serial No. 48,035.

This invention relates to certain improvements in intaglio and the like printing machines.

In this type of printing machine printing is effected by an engraved or etched form such as an engraved copper covered cylinder. These cylinders have to be changed frequently and are usually taken out of the press horizontally. The cooperating impression means in this type of machine, to affect the best results, is usually placed directly above the printing cylinders. These cylinders have to be changed very frequently during the printing operation and it is desired, therefore, that they be so mounted that this change can be readily and quickly affected. In the best printing practice, with this type of machine, engraved cylinders run in the ink. To get the cylinder out of the machine the inking mechanism must be moved to permit this to be done. It is desirable, therefore, that this inking mechanism be so constructed that it can be readily and quickly moved out of the way. It is the especial object of the present invention to provide an improved mounting for the form cylinders of intaglio machines by which the cylinders may be readily and quickly removed from and replaced in the machine with the least possible loss of time.

A further object of the invention is to provide a construction in which the fountain mechanism may be very expeditiously moved out of the way of the cylinder so that it is quickly removable and replacing of the cylinder is possible.

With these and other objects not specifically referred to, the invention consists in certain novel parts, arrangements and combinations which will be described in connection with the accompanying drawings and the novel features thereof pointed out in the claims hereunto annexed.

Referring now to these drawings:

Figure 1 is an end elevation of so much of a rotary intaglio machine as is necessary for an understanding of the invention.

Figure 2 is an end view on an enlarged scale of the construction shown in Figure 1, the cylinder being illustrated in running position.

Figure 3 is a similar view showing the

parts in the position they occupy when the cylinder is ready for removal.

Figure 4 is a side elevation, partly broken away, of the construction shown in Figure 2, the view being taken in the direction of arrow 4 of that figure, and

Figure 5 is a detail sectional view, the view being taken on the line 5—5 of Figure 2, looking in the direction of the arrow in Figure 2.

Referring now to these drawings, the invention has been illustrated as embodied in a rotary intaglio machine in which both the printing elements are cylinders and in which but one printing couple is shown. It will be understood, however, that the invention has been designed for, and is capable of use, in other relations and will be employed in intaglio machines having more than one printing couple wherever necessary or desired.

Referring now to these drawings, the various parts of the machine are supported in side frames 1, 2, of any usual or desired construction. Mounted in these side frames is the form cylinder 3 and a cooperating impression means shown in the form of a cylinder 4. The particular machine shown is arranged to print on a web W running from any suitable source of supply, not shown, and being dried after printing on a roll 5 suitably mounted in bearings 6 on a top frame 7.

In accordance with the invention, the form cylinder 3 is mounted so that it can be very readily and quickly moved horizontally out of the machine. While the particular means for affecting this may be somewhat varied, in the particular construction shown the bearings in which the cylinder runs are open bearings, that is, are open at the top when in running position. This form of bearing has certain advantages in this type of printing, and these bearings are constructed and arranged so that they may be manipulated to bring the open face of the bearing into such position that the cylinder may be simply rolled out of the bearings on to any suitable support for receiving it, thus permitting a very quick removal of the cylinder.

In the particular construction shown, there-

fore, there are provided a pair of cylinder bearings 8, 9, in which the shaft 10 of the form cylinder 3 rotates. These bearings are, as shown, open at one side, as indicated by the numeral 11, the sides of the bearings at their outer edges being preferably slightly beveled or inclined, as indicated at 12, to permit the ready placement of the cylinder in the bearings. These bearings are alike and description of one will suffice for both. For convenience of removal, the bearing is made in two pieces, the bearing proper 8 and a flange 13 being suitably secured to the bearing as by screws 14 (see Fig. 5). The side frame is formed with a pair of curved projections 15, 16, which engage two grooves 17, 18, in the bearing and in the flange (see Fig. 5), which center the bearing and permit the rotation of the bearing relatively to the frame.

When this bearing is rotated 90° the open end 11 of the bearing is brought to a side position, as shown in Figure 3, and when it is in this position the cylinder may be rolled out of the bearing. Various means may be provided for thus rotating the bearings to clearing position. A convenient means is that shown in which the flange 13 is provided with a lug 19 having a pin 20 on which is pivoted one end of a link 21. The other end of this link is connected with a crank arm 22 by means of a pin 23, this crank arm being secured on a shaft 24 provided with a square end 25 by which it may be turned by any suitable tool, as a wrench. It will be understood that this shaft 24 takes bearing in the side frames 1, 2, and extends across the machine. Link 21 and crank 22 are duplicated on the other side of the machine and the operation of the square end of the shaft simultaneously operates both bearings, as will be understood. With this construction the shaft of the cylinder may be very quickly and rapidly replaced and removed from the machine. When the cylinder is taken out of the machine it may be received on any suitable support as, for instance, a pair of bars 26 pivoted at 27 in the side frames of the machine, one of which is shown, the outer ends of the bar resting on any suitable support, as a truck, not illustrated, by which the cylinder may be moved to any desired point. In machines constructed in accordance with the best practice, an improved inking mechanism is employed which can be readily and quickly moved out of the way of the form cylinder so that the cylinder may be readily and quickly removed from its bearings. While this inking mechanism, of course, may vary in construction, in the preferred embodiment of the invention this inking mechanism will be that shown in my copending application serially numbered 46021. This

mechanism will include a fountain 30 having a rounded bottom 31 and a sharply inclined wall 32. This fountain is mounted to have a rocking or swinging movement so that it can be readily and quickly rocked to and from the form cylinder, normally running in the ink in the fountain. In the construction shown, the fountain is provided with a pair of lugs 33, 34, which are directly opposite each other and form supports for studs 35 secured in the side frames, before referred to. The front or outer end of the fountain is also provided with a pair of lugs 36, 37, which form a support for a stud 38. This stud has pivoted thereon one end of a link 39, and the other end of this link is carried on a stud 40 on one arm 41 of a bell crank lever pivoted on a stud 42 supported in a standard 43 rising from a base 44 or other suitable support. The other arm 45 of this bell crank lever carries a stud 46 on which is mounted a roll 47. This roll cooperates with an actuator in the form of a worm 49 supported so as to rotate on a shaft 51 suitably supported in brackets 50, 52, mounted on the standard 43, before referred to, this shaft being provided with an operating arm 53 having a handle 54. If desired, the fountain may be provided with a draw-off valve 55 by which ink can be removed from the fountain. Stops 56 may be provided, if desired, for limiting the movement of crank arm 22.

With the construction shown and described it will be plain that a very quick removal and positioning of the form cylinder can be effected thus saving a considerable amount of time in the operation of a press so equipped.

While the invention has been shown and described in the preferred form, it will be understood that various changes may be made in the specific construction and arrangement of parts without departing from the invention as defined in the appended claims.

What is claimed is:

1. In a printing machine, the combination of an engraved form cylinder, cooperating impression means, a pivoted fountain in which the cylinder runs, open bearings for the cylinder, means for rotating the bearings to permit the cylinder to be moved sideways therefrom through the openings, and means for swinging the fountain away from the cylinder to permit such sidewise removal of the cylinder.

2. In a printing machine, the combination of an engraved form cylinder, cooperating impression means, side frames, guides on the side frames, open bearings for the cylinder having parts cooperating with the guides, an operating shaft, cranks thereon, and link connections to the bearings from

the cranks for turning the bearings about their axes and permit the removal of the cylinder through the openings.

3. In a printing machine, the combination of an engraved form cylinder, cooperating impression means, side frames, guides on the side frames, open bearings for the cylinder having removable side flanges, grooves

in the bearings and flanges cooperating with the guides, an operating shaft, and connections from the shaft for rotating the bearings to permit the removal of the cylinder sidewise through the openings. 10

In testimony whereof, I have hereunto set my hand.

ADOLPH M. ZUCKERMAN.